Bulletin of the Russian Academy of Sciences: Physics 2012 vol.76 N3, pages 267-271

# The generalized dynamical equation and the vacuum polarization effect in hydrogenlike atoms

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## Abstract

Based on the generalized dynamical equation, vacuum polarization effects are studied within the scope of the bound state theory in quantum electrodynamics. We find a vacuum-polarization correction to the Lamb shift for the 1S state of the hydrogen atom on the order of (α/π) 2(Z(α) 4 that is not considered in the standard theory of bound states in quantum electrodynamics. © Allerton Press, Inc., 2012.

http://dx.doi.org/10.3103/S1062873812030380